

1.4 In the Chips

When business records were kept by hand, accountants used red ink for expenses and black ink for income. If your income was greater than your expenses you were “in the black.” If your expenses were greater than your income you were “in the red.”

Julia has this problem to solve:

Linda owes her sister \$6 for helping her cut the lawn. She earns \$4 delivering papers with her brother. Is she “in the red” or “in the black”?

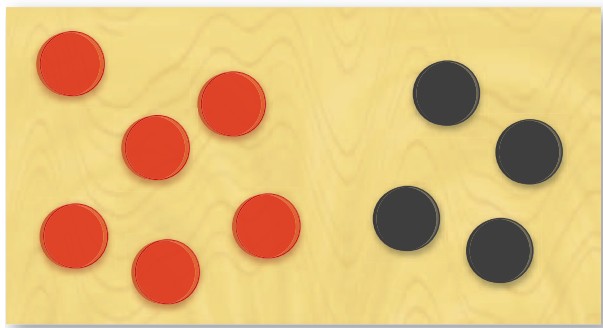


Getting Ready for Problem 1.4

Julia uses red and black chips to model income and expenses. Each black chip represents $+1$ dollar of income. Each red chip represents -1 dollar of income (expenses).

Julia puts chips on the board to represent the situation. She decides Linda is “in the red” 2 dollars, or -2 dollars.

Julia's Chip Board



- Why do you think she concludes that $-6 + +4 = -2$?
- What is another way to show -2 on the board?

Find the missing part for each chip problem. What would be a number sentence for each problem?

	Start With	Rule	End With
1.		Add 5	
2.		Subtract 3	
3.			
4.		Subtract 3	

Problem 1.4 Using a Chip Model

Use ideas about black and red chips to answer each question. Then write a number sentence.

- A.** Give three combinations of red and black chips (using at least one of each color) that will equal each value.

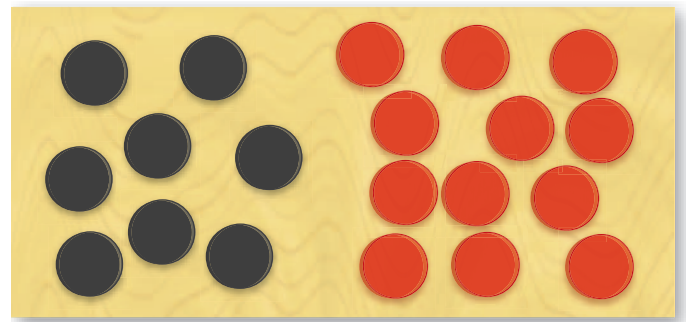
1. 0

2. $+12$

3. -7

4. -125

- B.** Use this chip board as the starting value for each part. Find the total value on each chip board.



- original chip board
- add 5 black chips
- remove 5 red chips
- remove 3 black chips
- add 3 red chips

- C.** Cybil owes her sister \$7. Her aunt pays her \$5 to walk her dog. How much money does she have after she pays her sister?
- D.** Tate earns \$10 mowing a lawn. He needs to pay \$15 to rent his equipment. How much more money does he need to pay his rent?
- E.** Describe chip board displays that would match these number sentences. Find the results in each case.

1. $+3 - +2 = \square$

2. $-4 - +2 = \square$

3. $-4 - -2 = \square$

4. $+7 + \square = +1$

5. $-3 - +5 = \square$

6. $\square - -2 = +6$

active math
online

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Homework starts on page 16.